

(CeSERT) polypeptide, wherein said mutated CeSERT polypeptide has a reduced capacity to take up serotonin relative to wild-type, with said compound;

(b) assaying a defined behavior of said first nematode;

(c) assaying said defined behavior of a second nematode not contacted with said compound; and

(d) comparing said defined behavior of said first nematode to that of said second nematode, wherein a difference in said defined behavior between said first and second nematode indicates that said compound has a secondary target.

2. (Amended) The method of either claim 1 or 12, wherein steps (a) to (d) are repeated using first and second nematodes selected from a panel of nematodes expressing mutant CeSERT polypeptides, wherein said mutant CeSERT polypeptides differ from said mutated CeSERT polypeptide of step (a).

3. (Amended) The method of either claim 1 or 12, wherein said mutated CeSERT polypeptide is a complete loss-of-function.

4. (Amended) The method of either claim 1 or 12, wherein said method comprises a liquid locomotion assay.

5. (Amended) The method of either claim 1 or 12, wherein said defined behavior is movement, pharyngeal pumping, egg-laying, nose contraction, or defecation.

6. (Amended) The method of either claim 1 or 12, wherein said mutated CeSERT polypeptide is selected from the group consisting of a CeSERT(*n822*) polypeptide, a CeSERT(*n823*) polypeptide, and a CeSERT(*n3314*) polypeptide.

Q1
Cont
7. (Amended) The method of either claim 1 or 12, wherein said compound is from a class of compounds selected from a group consisting of antidepressants, migraine medications, and anti-emetics.

Q2
11. (Amended) The method of either claim 1 or 12, wherein said test compound is administered at more than one concentration.

Please add the following new claim.

12. (New) A method for identifying a test compound capable of modulating the uptake of serotonin by a serotonin reuptake transporter (SERT), wherein said test compound modulates the activity of a secondary target that is not a SERT, said method comprising the steps of:

Q3
(a) contacting a first nematode expressing a mutated *Caenorhabditis elegans* SERT (CeSERT) polypeptide, wherein said mutated CeSERT has a reduced capacity to take up serotonin relative to wild-type, with said compound;

(b) assaying a defined behavior of said first nematode; and

(c) comparing said defined behavior of said first nematode to the defined behavior of a second nematode expressing said mutated CeSERT polypeptide but not contacted with said

compound, wherein a difference in said defined behavior between said first and second

nematode indicates said compound is capable of modulating the uptake of serotonin by a

serotonin reuptake transporter (SERT) by modulating the activity of a secondary target.
